

In the claims:

1. (Currently Amended) A composition comprising a purified ~~thermostable~~-Gux1 peptide, said Gux1 peptide comprising a catalytic domain classified in family glycoside hydrolase 48 (GH48), a carbohydrate binding domain (CBD) type III, and a carbohydrate binding domain (CBD) type II.
2. (Original) The composition of claim 1 wherein the Gux1 peptide is further defined as comprising a linker and a signal peptide.
3. (Previously Amended) The composition of claim 1 wherein the GH48 catalytic domain of the Gux1 peptide is further defined as having a length of about 637 to about 643 amino acids.
4. (Previously Amended) The composition of claim 1 wherein the carbohydrate binding domain (CBD) type III of the Gux1 peptide is further defined as having a length of about 150 to about 156 amino acids.
5. (Previously Amended) The composition of claim 1 wherein the carbohydrate binding domain (CBD) type II of the Gux1 peptide is further defined as having a length of about 95 amino acids to about 105 amino acids in length.
6. (Original) The composition of claim 3 wherein the GH48 catalytic domain is further defined as the sequence of SEQ ID NO: 5.
7. (Original) The composition of claim 4 wherein the carbohydrate binding domain (CBD) type III is further defined as the sequence of SEQ ID NO: 4.
8. (Original) The composition of claim 6 wherein the carbohydrate binding domain (CBD) type II is further defined as the sequence of SEQ ID NO:7.

9. (Previously Amended) The composition of claim 1 further defined as comprising, in combination, a sequence of SEQ ID NO: 4, SEQ ID NO: 5, and SEQ ID NO: 7.
10. (Original) A thermal tolerant Gux1 peptide having a sequence of SEQ ID NO: 1.
11. (Previously Amended) The Gux1 peptide of claim 10 further defined as having an amino acid sequence encoded by SEQ ID NO: 2.
12. (Cancelled)
13. (Cancelled)
14. (Previously Amended) The composition of claim 1 wherein the Gux1 is further defined as comprising an amino acid sequence having at least 90% sequence identity to SEQ ID NO: 5.
15. (Previously Amended) The composition of claim 1 wherein the Gux1 is further defined as comprising an amino acid sequence having at least 80% sequence identity to SEQ ID NO: 5.
16. (Previously Amended) The composition of claim 1 wherein the Gux1 is further defined as comprising an amino acid sequence having at least 70% sequence identity to SEQ ID NO: 5.
17. (Previously Amended) The composition of claim 1 wherein the Gux1 is further defined as comprising an amino acid sequence having at least 90% sequence identity to SEQ ID NO: 7.
18. (Previously Amended) The composition of claim 1 wherein the Gux1 is further defined as comprising an amino acid sequence having at least 90% sequence identity to SEQ ID NO: 4.

19. (Previously Amended) The composition of claim 1 wherein the Gux1 is further defined as comprising an amino acid sequence having at least 90% sequence identity to SEQ ID NO: 6.
20. (Previously Amended) The composition of claim 1 wherein the Gux1 is further defined as comprising an amino acid sequence having at least 90% sequence identity to SEQ ID NO: 1.
21. (Previously Amended) The composition of claim 1 wherein the Gux1 is further defined as comprising an amino acid sequence encoded by a nucleic acid sequence that has at least 90% identity to the nucleic acid sequence of SEQ ID NO: 2.
22. (Original) The composition of claim 1 wherein the Gux1 is further defined as comprising a nucleic acid sequence encoding a heterologous protein in frame with the Gux1 peptide of claim 1.
23. (Original) The composition of claim 22 wherein the heterologous protein in frame with the Gux1 peptide of claim 1 is further defined as a peptide tag.
24. (Previously Amended) The composition of claim 23 wherein the peptide tag is 6-His (SEQ ID NO: 8), thioredoxin, hemagglutinin, GST, or OmpA signal sequence tag.
25. (Previously Amended) The composition of claim 22 wherein the heterologous protein is a substrate targeting moiety.
26. (Cancelled)
27. (Cancelled)
28. (Previously Amended) An isolated polypeptide molecule comprising:

- a) a sequence of SEQ ID NO: 4;
 - b) a sequence of SEQ ID NO: 5;
 - c) a sequence of SEQ ID NO: 6;
 - d) a sequence of SEQ ID NO: 7;
 - e) a sequence of SEQ ID NO: 1; or
 - f) an amino acid sequence having at least 70% sequence identity with the amino acid sequence of a), b), c), d), or e).
29. (Previously Amended) The polypeptide molecule of claim 28, having at least 90% sequence identity with the amino acid sequence of a), b), c), d), or e).
30. (Previously Amended) A fusion protein comprising the polypeptide of claim 28 and a heterologous peptide.
31. (Previously Amended) The fusion protein of claim 30, wherein the heterologous peptide is a substrate targeting moiety.
32. (Previously Amended) The fusion protein of claim 30, wherein the heterologous peptide is a peptide tag.
33. (Previously Amended) The fusion protein of claim 32, wherein the peptide tag is 6-His (SEQ ID NO: 8), thioredoxin, hemagglutinin, GST, or OmpA signal sequence tag.
34. (Previously Amended) The fusion protein of claim 30, wherein the heterologous peptide is an agent that promotes polypeptide oligomerization.
35. (Previously Amended) The fusion protein of claim 34, wherein the agent is a leucine zipper.
36. (Cancelled)

- 37. (Cancelled)
- 38. (Cancelled)
- 39. (Cancelled)
- 40. (Cancelled)
- 41. (Cancelled)
- 42. (Cancelled)
- 43. (Cancelled)
- 44. (Previously Amended) A composition comprising the polypeptide molecule of claim 29 and a carrier.
- 45. (Previously Amended) A composition comprising the polypeptide molecule of claim 30 and a carrier.
- 46. (Cancelled)
- 47. (Cancelled)
- 48. (Cancelled)
- 49. (Cancelled)
- 50. (Cancelled)
- 51. (Cancelled)

52. (Cancelled)

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63. (Cancelled)

64. (Cancelled)

65. (Cancelled)

66. (Cancelled)

67. (Cancelled)
68. (Cancelled)
69. (Previously Added) The composition of claim 1 further comprising a carrier.
70. (Currently Amended) The composition of claim 1 wherein the ~~substantially~~ purified ~~thermostable~~-Gux I peptide is further defined as comprising a heterologous peptide or protein.
71. (Previously Amended) The composition of claim 70 wherein the heterologous peptide or protein comprises an immunoglobulin.
72. (Previously Amended) The composition of claim 70 wherein the heterologous peptide comprises a histidine tag.
73. (Previously Amended) The composition of claim 70 wherein the heterologous peptide comprises a leucine zipper.
74. (Previously Amended) The composition of claim 70 wherein the heterologous peptide comprises a fusion protein.
75. (New) A composition comprising a purified Gux1 peptide, said Gux1 peptide comprising a catalytic domain classified in family glycoside hydrolase 48 (GH48) having a sequence of SEQ ID NO. 5, a carbohydrate binding domain (CBD) type III, and a carbohydrate binding domain (CBD) type II
- 76 (New) The composition of claim 75 wherein the carbohydrate binding domain (CBD) type III is further defined as the sequence of SEQ ID NO: 4.

77. (New) The composition of claim 76 wherein the carbohydrate binding domain (CBD) type II is further defined as the sequence of SEQ ID NO:7.
78. (New) The composition of claim 1 further defined as comprising, in combination, a sequence of SEQ ID NO: 4, SEQ ID NO: 5, and SEQ ID NO: 7 in that particular order.